

## A THERMODYNAMIC MODEL FOR THE FORMATION OF PROTEIN AGGREGATES ON A MATRIX

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The development of many neurodegenerative diseases is associated with the formation of pathological protein aggregates. In some cases, these aggregates can be formed by multilayer adsorption of ligands on a matrix, for example, the set of membrane protein receptors. The paper proposes a thermodynamic model describing the formation of linear aggregates in which ligands can be stacked. The cases when these stacks consist of complexes of one or two different types are considered. The developed model can be applied to the study of pathological aggregation of proteins of different nature, primarily beta-amyloid and its isoforms. The mean, variance and entropy of the theoretical distributions of aggregate sizes are calculated. A comparison with other theoretical models of the formation of amyloid aggregates is made.

